

In the Claims:

Please amend claim 22. Please cancel claims 11, 13, 15-18, 25 and 26. The claims are as follows:

1. - 18. (Canceled)

19. (Previously Presented) The method of claim 22, wherein after (d) and before (e), a first volume of fill material in said first region not completely contained in said trenches of said first set of trenches is about equal to a second volume of fill material in said second region not completely contained in said trenches of said second set of trenches.

20. (Previously Presented) The method of claim 22, wherein (d) removes about 5 to 20% of the as deposited thickness of said fill material.

21. (Previously Presented) The method of claim 22, wherein (d) reduces the difference between a volume of said fill material over first region and a volume of said fill material over said second region.

22. (Currently Amended) A method of fabricating a filled trench structure, comprising:

(a) forming a planarization stop layer on a top surface of a substrate;

(b) forming a first set of trenches in a first region of said planarization stop layer and said substrate and forming a second set of trenches in a second region of said planarization stop layer

and said substrate, said first set of trenches having at least two more adjacent trenches, trenches in said first set of trenches having a higher aspect ratio than said trenches in said second region;

(c) depositing a layer of a fill material in and over said first and second sets of trenches and on a top surface of said planarization stop layer, said fill material completely filling each trench of said first set of trenches and completely filling each trench of said second sets of trenches;

(d), after (c):

(i) forming a mask layer on said layer of fill material;

(ii) forming an opening in said mask layer in said first region and over trenches of said first set of trenches;

(iii) removing a layer of said layer of said fill material exposed in said opening, said fill material still completely filling each trench of said first set of trenches, measured from a plane coplanar with said top surface of said planarization stop layer and in a direction away from said substrate after said removing of said layer of said layer of said fill material, ~~said fill~~ a remaining layer of said fill material thicker over said planarization stop layer between adjacent trenches of said first set of trenches ~~then~~ than over ~~said fill material contained within~~ each trench of said first set of trenches; and

(iv) removing said masking layer; and

(e) after (d), removing, using a planarization process, all of said remaining layer of said fill material from said top surface of said planarization stop layer and over said first and second regions, said fill material still completely filling each trench of said first set of trenches and each trench of said second set of trenches, a top surface of said fill material in said first set of trenches

and a top surface of said fill material in said second sets of trenches co-planer with said top surface of said planarization stop layer.

23. (Previously Presented) The method of claim 22, wherein (d) includes a wet etching, a dry etching, a reactive ion etching or a plasma etching process.

24. (Previously Presented) The method of claim 22, wherein in (e) said planarization process includes chemical-mechanical polishing or fixed abrasive grinding.

25 - 26. (Canceled)

27. (Previously Presented) The method of claim 22, wherein in (c) after said depositing, a first thickness of said layer of said fill material directly over each trench of said first set of trenches is greater than a second thickness of said layer of said fill material directly over each trench of said second set of trenches, said first and second thicknesses measured perpendicularly from a plane coplanar with said top surface of said planarization stop layer to a top surface of said layer of said fill material.

28. (Previously Presented) The method of claim 22, wherein the aspect ratio of trenches in said first set of trenches is greater than about 3:1 and the aspect ratio of trenches in said second region is less than about 3:1.

29. (Previously Presented) The method of claim 22, wherein said first region is a memory cell array region and said second region is a support circuit region of an integrated circuit.

30. (Previously Presented) The method of claim 22, wherein said fill material is selected from the group consisting of: high-density plasma oxide, low-pressure chemical vapor deposition oxide, tetraethoxysilane oxide, silicon nitride, bis(tertiary-butylamine)silane, a thin layer of conformal insulator and a fill layer of N-doped, P-doped or un-doped polysilicon, tungsten, copper or aluminum.